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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,456	04/02/2001	Masaaki Yuri	NAK1-BO34	9508

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EXAMINER

MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,456

Applicant(s)

YURI ET AL.

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 29 and 31-40 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19, 29 and 31-40 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

In response to the amendment filed 2/5/2004, claims 1, 5, and 29 are amended, claims 39-40 added, and claim 30 cancelled. Claims 1-19, 29, and 31-40 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 31-32 and 35-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of the claims recites the limitation "the optical element". There is insufficient antecedent basis for this limitation in the claim. This limitation has amended in parent claim 29 to read "a diffraction grating" and thus these claims must now be amended to reflect this change.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1-2, 4, 16, 29, 33, 36, and 39-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Pillai (previously cited US 6,212,216). Pillai discloses the claimed invention as follows (see in particular Figs. 21A and 23 and the discussion thereof):

Independent claims:

Regarding claim 1, Pillai discloses a semiconductor laser device comprising a plurality of laser light oscillators 1-5 that each emit light from an outlet thereof, and a diffraction grating 181,186 that transmits a laser beam that is oscillated in at least one of the laser light oscillators and is emitted from an outlet thereof so that a portion of the laser beam is incident on at least one of the other laser light oscillators. See also col. 10 lines 25-30.

Regarding claims 29 and 39-40, the limitations are disclosed as in the rejection of claim 1 above, and further phase locking of the oscillators is enabled. See col. 10 lines 25-30.

Dependent claims:

Regarding claim 2, the plurality of lasers 1-5 are included in a semiconductor laser array element, and the diffraction grating is disposed so as to face the outlet of the at least one of the oscillators, the diffraction grating being translucent to partially transmit and partially reflect so that the laser beam is directed to the at least one of the other oscillators.

Regarding claims 4 and 36, a reflecting optical path of the grating is directed to the outlet of the at least one other light oscillator, thereby the portion of the laser beam is directed in a vicinity of an optical axis of the laser beam at the outlet of the at least one other light oscillator.

Regarding claims 16 and 33, the oscillators are parallel and are real refractive index guided.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5-10, 15, 17, 31, 34-35, and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillai.

Regarding claims 3 and 38, it is not disclosed that the plurality of light oscillators are located in a plurality of array elements (rather than the single array element as shown). It would have been obvious to one skilled in the art to form this array in a number of elements as claimed, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. A plurality of stacked arrays would be the equivalent of a single larger array.

Regarding claims 5-10, 31, and 37 the specifics of the grating are not disclosed. However, the examiner maintains that these are known gratings, and one skilled in the art would choose such a grating as a matter of intended use as a known means of transporting the lasers emitted from the arrays. Therefore, it would have been obvious to one skilled in the art to choose this known grating as a matter of obvious engineering design choice.

Regarding claim 15, the array elements are included on a single substrate.

Regarding claim 17, the oscillators are in a single array and are real refractive index guided self aligned structures.

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Regarding claim 34, the particular active layers are not disclosed. However, such active layers are known in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use these particular materials for the active layers, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 35, Pillai discloses the grating may reflect back a few percent to 99% of the incident light. The claim requires 10% to 30% to be reflected back. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Claims 11-12 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillai in view of Rakuljic et al. (US 5,691,989). Pillai teaches the claimed limitations as shown above, but does not teach the grating is a hologram. Rakuljic teaches that a hologram grating may be substituted for a grating. It would have been obvious to one skilled in the art to use a hologram grating as it is accurate and temperature stable, as taught by Rakuljic.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillai in view of Ota (previously cited US 5,570,226). Pillai discloses and teaches the limitations of the claims shown above, but does not disclose that the oscillators have two outlets. Ota teaches a similar system where the back side of the array is also an outlet. It would have been obvious to

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one skilled in the art to include the back side as an outlet so that the laser beam may be monitored, as taught by Ota.

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillai in view of Craig et al. (previously cited US 6,167,075). The claims are describing a plurality of the devices of claim 1 having the outputs of each device condensed, and various other means. Craig teaches a number of laser array elements whose outputs are condensed as claimed (figs. 1, 6). It would have been obvious to one skilled in the art to utilize a number of arrays in this manner to provide a high power output, as taught by Craig.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

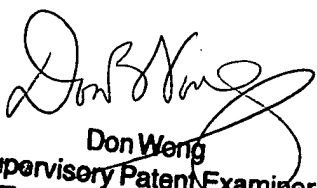
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JM
April 2, 2004



Don Wong
Supervisory Patent Examiner
Technology Center 2800